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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,230	01/04/2002	John A. Lawton	P 283268 D1087-CON	2923

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EXAMINER

HAMILTON, CYNTHIA

ART UNIT PAPER NUMBER

1752

DATE MAILED: 02/21/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

AS-8

Office Action Summary	Application N .	Applicant(s)	
	10/035,230	LAWTON ET AL.	
	Examiner	Art Unit	
	Cynthia Hamilton	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01/04/02, 1/31/02, 5/21/02 .
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-48 is/are pending in the application.
- 4a) Of the above claim(s) 39-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-38, 41-48 is/are rejected.
- 7) ☒ Claim(s) 39-40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

1. Claims 39-40 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits. Claim 39 depends upon the compositions of claim 33 and 26.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 33-38 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The genus set forth by instant claim 33 is not fully supported by the original disclosure. There is no disclosure wherein dipentaerythritol monohydroxy penta (meth)acrylate is used in a photosensitive composition without being used in conjunction with an aromatic or cycloaliphatic acrylic material. The only disclosure of a composition comprised of this monohydroxy penta (meth)acrylate is in col. 10, line 35. As disclosed in lines 18-24, this monohydroxy penta (meth)acrylate is only used in addition to "the aromatic or cycloaliphatic acrylic material". There is no disclosure to the broadest interpretation of instant claims 33-34, 36-38 wherein such components are not present. There is no disclosure to the mixture of monohydroxy penta (meth)acrylate and acrylates of bisphenol A as a species of composition either. With respect to instant claim 38, there is no disclosure to instant compositions with mixtures of monohydroxy penta (meth)acrylate and trimethylolpropane

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triacrylate either. The examiner notes that applicant's preliminary amendment filed January 31, 2002 wherein newly submitted claims 21-40 were added to the original description has no showing of support in the original disclosure for the new claims. See particularly MPEP 714.02 and 2163.06 and MPEP 2163.04.

4. Claims 21-32 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The genus set forth by instant claim 21 is not fully supported by the original disclosure. There is no disclosure wherein an aliphatic polyfunctional (meth)acrylate is used in a photosensitive composition without being used in conjunction with an aromatic or cycloaliphatic acrylic material. This is even more true of claim 28 wherein dipentaerythritol monohydroxy penta (meth)acrylate is used in a photosensitive composition without being used in conjunction with an aromatic or cycloaliphatic acrylic material. No working example has a composition without the aromatic or cycloaliphatic acrylic material present in the instant specification. Example 16 is the closest but even in it has Epoxy 5 present which is an acrylated bisphenol A compound. The broad disclosure is in col. 4, a free-radical polymerizable acrylic material then the next genus is the aromatic or cycloaliphatic acrylic material. With respect to instant claims 21- 32, there is no disclosure to a genus of aliphatic polyfunctional (meth)acrylates being used without other acrylates present. The examiner does note that there are examples of the combination of trimethylol triacrylate, bisphenol A acrylates and polytetrahydrofuran polyether polyol but no such combination is found in these claims. The examiner notes that applicant's preliminary amendment filed January 31, 2002 wherein newly

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submitted claims 21-40 were added to the original description has no showing of support in the original disclosure for the new claims. See particularly MPEP 714.02 and 2163.06 and MPEP 2163.04.

5. Claims 30 and 34 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The generic combination of cycloaliphatic diepoxide and "an epoxy-containing material selected from the group consisting of polyglycidyl ethers and poly(methylglycidyl) ethers" as found in claims 30 and 34 is not disclosed in the original specification or claims. Cycloaliphatic epoxides are disclosed as a choice and on page 10 polyglycidyl ethers obtained in a specific manner are disclosed. However there is no generic broad disclosure of mixing these two groups, if they are considered two non overlapping groups of compounds. the Examples only have specific species of the generic grouping. applicants have not given sufficient evidence to support his addition to the claim language. The examiner notes for the record this rejection was also made in the parent application with respect to this combination.

6. **For the record:**

a. The examiner notes that the Epoxy 5 cited in the Examples is also an aromatic acrylate compound. She notes that there is not one working example in the specification wherein an aliphatic acrylate is used as the only acrylate material in the compositions. In every example given the sole aliphatic acrylate, i.e. trimethylolpropane triacrylate

(Acrylate 2), is combined either with an aromatic acrylate, i.e. a bisphenol A acrylate compound.

b. The examiner notes that the original claim language uses "an elongation at yield in the range of 7% to no yield" but the specification at last paragraph on page 8 uses "a tensile elongation at yield of 7% *or greater* to no yield" (emphasis added by this examiner). There is a difference in 7% and 7% or greater.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 30 and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 33 requires the presence of a cycloaliphatic diepoxide then claim 34 adds "further comprises an epoxy -containing material selected from the group consisting of polyglycidyl ethers and poly (methylglycidyl) ethers". The examiner is unsure if the cycloaliphatic diepoxide is part of the polyglycidyl ethers and poly (methylglycidyl) ethers of claim 33 or if the polyglycidyl ethers and poly (methylglycidyl) ethers are in addition and different than the cycloaliphatic diepoxide. See in the specification col. 8, lines 38-58. For examination purposes this combination is given the broadest reasonable interpretation, i.e. that both groups can be the same compound if it is di glycidyl ether. The limits of the claim language at this point are confusing. The same problem arises in claim 30.

9. The examiner notes that applicants on page 20 of their specification do not require the hydroxy-containing material to be free of any groups which interfere with the curing reaction are which are thermally or photolytically unstable only that the material "should" be these things.

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This is not a requirement that said material possess these properties. The examiner taking the broadest reasonable meaning of "should " considers it an expression of probability or expectation, i.e. a preference not a requirement. See "should", your dictionary.com for support of this interpretation. polyols from polybutadienes are listed on page 21 by applicants. This choice of material has a group which will cure with the free radical initiators and will take part in the curing reaction.

10. The examiner notes for the record that applicants define comprising with respect to (c) the polytetrahydrofuran polyether polyol to include zero amount of (c), i.e. 0-40%. This is different than the meaning of this term as recognized by the PTO wherein comprised with a component listed means the component is present. Thus, the examiner notes applicant's invention of claims 36 and 37 limit the amount of this component present and the nature of this component neither require the component (c) be present. The examiner makes clear that the invention of claims 33-38 does not require the presence of polytetrahydrofuran polyether polyol.

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 21 and 31-37 are rejected under 35 U.S.C. 102(b) as anticipated by Steinmann et al (CA 2,211,628). The composition of Example 3 of Steinmann et al anticipates the instant composition, process and cured article wherein for claims 21, 31-32, the hydroxy-terminated polyether is Dianol 320, the cycloaliphatic diepoxide is Araldit DY 179, and the aliphatic polyfunctional (meth)acrylate is Sartomer SR 399. With respect to instant claims 33-37, the cycloaliphatic diepoxide is Araldit DY 179, the dipentaerythritol monohydroxy pentaacrylate is Sartomer SR 399 and no polytetrahydrofuran polyether polyol is present. The identity of these components is set forth by Steinmann et al on page 19. The propoxylated bisphenol A structure is generically set forth on pages 12-13. This is a polyether polyol structure. The examiner holds that this composition when fully cured has properties that inherently fall within the elongation at range of "7% to no yield", the average elongation at break of at least 10% and the tensile modulus in the range of 1000 to 1600 N/mm² as required by the instant invention.

14. Claims 33-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Steinmann et al (5,476,748). The composition of Example 14 of Steinmann et al anticipates the instant invention wherein zero percent of polytetrahydrofuran polyether polyol is present. The fully cured composition with elongation at tear of 11.2% is held to not yield or yield at the range of 7% thus read on the instant compositions.

15. Claims 33-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Steinmann et al (5,972,563). The composition of Example 3 of Steinmann et al anticipates the instant invention wherein zero percent of polytetrahydrofuran polyether polyol is present. The fully cured composition is held to inherently possess an elongation at yield in the range of 7% to no yield and an average elongation at break of at least 10%. The cycloaliphatic diepoxide is used in 48wt%, the Sartomer SR 399 is the dipentaerythritol penta (meth) acrylate and the Novacure 3700 is a bisphenol A diglycidal ether diacrylate. In Steinmann et al, see particularly col. 15 and Example 3.

16.

17. Claims 33-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Pang et al (6,100,007). Examples 1-2 as found in Table 1 anticipate the instant composition and inherently possess an elongation at yield in the range of "7% to no yield and an average elongation at break of at least 10%. The compositions of Examples 1-2 have 50.2 or 65.2 wt% of cyclic diepoxides, i.e. UVA Cure 1500, 30 or 15% of aliphatic polyglycidyl epoxides, i.e. Heloxy 48, 6.0 wt% dipentaerythritol monohydroxypentaacrylate, i.e. SR 399 and 6.3% bisphenol a diglycidyl ether diacrylate, i.e. N3700 or Ebecryl 3700. There is zero percent polytetrahydrofuran polyether polyol present. All of these components fall within the range set forth by applicants in their claim language.

18. Claims 21, 26, 31-32 are rejected under 35 U.S.C. 102(a) as being anticipated by Yamamura et al (EP 0 938 026 A1). The compositions, methods of formation and objects formed of Examples 1-7 anticipate the instant compositions, methods of formation and objects wherein the PO-modified glycerol is the polyol polyether and the trimethyloltriacylate is the

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aliphatic polyfunctional (meth) acrylate. These compositions are held to inherently have an elongation at yield in the range of 7% to no yield, a tensile modulus in the range of 1000 to 1600 N/mm² and an average elongation at break of at least 10%.

19. Claims 33- 38, 41-48 are rejected under 35 U.S.C. 103(a) s being unpatentable over Lawton (Wo 00/03300). Lawton disclose forming compositions wherein the cured object has a tensile break elongation before yield or a tensile yield elongation greater than 6% and on page 12 disclosed a tensile elongation preference for 6-8%. The working examples 1-6 in Table 1 all have Tensile yield elongation above 17, i.e. if elongation at yield is above 10% then the average elongation at break is at least 10%. Thus, the physical properties sought by applicants in instant claims 33-38 and 41-48 are exhibited by the working examples of Lawton. The working examples do not, with respect to instant claims 33-38, have dipentaerythritol monohydroxy penta (meth) acrylate but present but the other components are present. The working examples, with respect to instant claims 41-48, do not use a mixture of epoxies but instead use one cycloaliphatic diepoxide but the other components are present. The ranges of epoxide used by Lawton are from 20-40% which overlaps applicant's range in instant claim 33 from 30-40%. All the working examples of Lawton fall within this overlap region. With respect to dipentaerythritol monohydroxy penta (meth) acrylate, this is listed on page 21 as a suitable aliphatic polyfunctional (meth)acrylate and is added in addition to either an acrylated cycloaliphatic compound or an aromatic acrylate compound. The use of mixtures of epoxides is disclosed on pages 13-16. Thus, with respect to instant claims 41-48, the adaptation of the compositions of Lawton to include mixtures of epoxides around the preferred cycloaliphatic diepoxides as taught would have been prima facie obvious as would have been the formation of

compositions fitting the limits set forth by the working examples, i.e. elongation at yields above 10%. With respect to instant claims 33-38, the use of the dipentaerythritol monohydroxy penta (meth) acrylate along with either the an acrylated cycloaliphatic compound or an aromatic acrylate compound also yielding cured products above 10% elongation as directed by the working example limits would have been prima facie obvious to obtain products that simulate the look and feel of polyethylene articles. In Lawton, see particularly page 4, 12, 21, 23 and examples.

20. Claims 33- 38, 41-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawton (US 6,287,748 B1). Lawton disclose forming compositions wherein the cured object has a tensile break elongation before yield or a tensile yield elongation greater than 6% and on page 12 disclosed a tensile elongation preference for 6-8%. The working examples 1-6 in Table 1 all have Tensile yield elongation above 17, i.e. if elongation at yield is above 10% then the average elongation at break is at least 10%. Thus, the physical properties sought by applicants in instant claims 33-38 and 41-48 are exhibited by the working examples of Lawton. The working examples do not, with respect to instant claims 33-38, have dipentaerythritol monohydroxy penta (meth) acrylate but present but the other components are present. The working examples, with respect to instant claims 41-48, do not use a mixture of epoxies but instead use one cycloaliphatic diepoxide but the other components are present. The ranges of epoxide used by Lawton are from 20-40% which overlaps applicant's range in instant claim 33 from 30-40%. All the working examples of Lawton fall within this overlap region. With respect to dipentaerythritol monohydroxy penta (meth) acrylate, this is listed in col. 12, lines 26-37 as a suitable aliphatic polyfunctional (meth)acrylate and is added in addition to either an acrylated

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cylcoaliphatic compound or an aromatic acrylate compound. The use of mixtures of epoxides is disclosed in col. 7-8. Thus, with respect to instant claims 41-48, the adaptation of the compositions of Lawton to include mixtures of epoxides around the preferred cycloaliphatic diepoxides as taught would have been prima facie obvious as would have been the formation of compositions fitting the limits set forth by the working examples, i.e. elongation at yields above 10%. With respect to instant claims 33-38, the use of the dipentaerythritol monohydroxy penta (meth) acrylate along with either the an acrylated cylcoaliphatic compound or an aromatic acrylate compound also yielding cured products above 10% elongation as directed by the working example limits would have been prima facie obvious to obtain products that simulate the look and feel of polyethylene articles. In Lawton, see particularly col. 2, col. 5-6 and examples.

21. *Any inquiry concerning this communication or earlier communications from the examiner should be directed to Primary Examiner Cynthia Hamilton whose telephone number is (703) 308-3626. The examiner can normally be reached on Monday-Friday, 9:30 am to 5:00 pm.*

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Baxter can be reached on (703) 308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of papers not received regarding this communication or earlier communications, or of a general nature or relating to the status of this application or proceeding should be directed should be directed to the Customer Service Center of Technology Center 1700 whose telephone number is (703) 306-5665.

Cynthia Hamilton
February 19, 2003



**CYNTHIA HAMILTON
PRIMARY EXAMINER**